WHAT IS CLAIMED IS:

1. An apparatus for sensing three-dimensional relative movement, the apparatus comprising:

a movable motion sensor comprising a first and a second two-dimensional array of photo detectors; and

at least one lens for directing far-field images onto the first and the second arrays of photo detectors, the sensor configured to generate digital representations of the far-field images and to generate three-dimensional relative movement data based on the digital representations of the far-field images, the movement data indicative of motion of the sensor in three dimensions.

2. The apparatus of claim 1, wherein the three-dimensional relative movement data comprises three-dimensional relative angular rotation data indicative of rotation of the sensor in three dimensions.

3. The apparatus of claim 1, wherein the three-dimensional relative movement data comprises three-dimensional relative translation data indicative of linear motion of the sensor in three dimensions.

4. The apparatus of claim 1, wherein the three-dimensional relative movement data comprises three-dimensional relative angular rotation data indicative of rotation of the sensor in three dimensions, and three-dimensional relative translation data indicative of linear motion of the sensor in three dimensions.

5. The apparatus of claim 1, wherein the at least one lens comprises a first lens for directing far-field images onto the first array of photo detectors, and a second lens for directing far-field images onto the second array of photo detectors.

6. The apparatus of claim 1, wherein the first two-dimensional array of photo detectors is positioned substantially perpendicular to the second two-dimensional array of photo detectors.

7. The apparatus of claim 1, wherein the first two-dimensional array of photo detectors is positioned perpendicular to the second two-dimensional array of photo detectors.

8. A method of sensing relative three-dimensional movement comprising:

providing a first and a second two-dimensional array of photo detectors;

directing a first set of far-field images onto the first and the second arrays of photo detectors;

digitizing outputs of the photo detectors in the first and the second arrays, thereby generating a first set of digital representations of the far-field images;

allowing a first movement of the first and the second arrays of photo detectors;

directing a second set of far-field images onto the first and the second arrays of photo detectors;

digitizing outputs of the photo detectors in the first and the second arrays, thereby generating a second set of digital representations of the far-field images;

correlating digital representations in the first set with digital representations in the second set; and

generating a set of motion data based on the correlation indicative of relative motion in three dimensions of the first and the second arrays.

9. The method of claim 8, wherein the motion data comprises three-dimensional relative angular rotation data indicative of rotation of the first and the second arrays in three dimensions.

10. The method of claim 8, wherein the motion data comprises three-dimensional relative translation data indicative of linear motion of the first and the second arrays in three dimensions.

11. The method of claim 8, wherein the motion data comprises three-dimensional relative angular rotation data indicative of rotation of the first and the second arrays in three dimensions, and three-dimensional relative translation data indicative of linear motion of the first and the second arrays in three dimensions.

12. The method of claim 8, wherein the first two-dimensional array of photo detectors is constructed substantially perpendicular to the second two-dimensional array of photo detectors.

13. The method of claim 8, wherein the first two-dimensional array of photo detectors is constructed perpendicular to the second two-dimensional array of photo detectors.

14. The method of claim 8, and further comprising:

outputting the motion data to an electronic device having a display screen; and

moving an object displayed on the display screen based on the motion data.

15. An apparatus for sensing three-dimensional relative movement, the apparatus comprising:

a first and a second two-dimensional array of photo detectors constructed in a substantially perpendicular arrangement;

a first lens for directing far-field images onto the first array of photo detectors;

a second lens for directing far-field images onto the second array of photo detectors; and

a controller coupled to the first and the second arrays of photo detectors, the controller configured to generate digital representations of the far-field images and to generate movement data based on the digital representations of the far-field images, the movement data indicative of motion of the first and the second arrays in three dimensions.

16. The apparatus of claim 15, wherein the movement data comprises three-dimensional relative angular rotation data indicative of rotation of the first and the second arrays in three dimensions.

17. The apparatus of claim 15, wherein the movement data comprises three-dimensional relative translation data indicative of linear motion of the first and the second arrays in three dimensions.

18. The apparatus of claim 15, wherein the movement data comprises three-dimensional relative angular rotation data indicative of rotation of the first and the second arrays in three dimensions, and three-dimensional relative translation data indicative of linear motion of the first and the second arrays in three dimensions.

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